

## **“Remote Sensing of Aerosols, Air Quality and Assessment of their Global and Regional Impacts”**

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Atmospheric aerosol particles represent an important component of the Earth system that have both natural and anthropogenic sources. In addition, aerosol particles have impacts on multiple spatial scales for issues as diverse as human health and global climate. Until a few decades ago, little was known about their global distribution and their properties, but with advances in remote sensing from the Earth’s surface, satellites, and airplanes, as well as related advances in in situ measurement and global modeling, we now have a much better idea as to the distribution, properties, and effects of aerosols regionally and globally. Aerosol particles are important contributors to local air quality and can affect the earth’s energy budget directly through light scattering and absorption and indirectly by affecting cloud optical properties. Aerosol particles have been and continue to be studied in the context of their atmospheric precursors and the processes involved in their creation, transport, and removal from the atmosphere. In this talk, a summary of recent advances by satellite-based sensors such as CALIPSO, MISR, MODIS, OMI, OMPS, SeaWiFS, TOMS, and VIIRS, together with surface-based observations from networks such as AERONET and MPLNet and data from field campaigns in the US and elsewhere (e.g., DISCOVER-AQ, KORUS-SQ, SEAC<sup>4</sup>RS) will be presented, along with future opportunities, including those from NASA’s forthcoming MAIA satellite.